PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Collective Leadership and Safety Cultures (Co-Lead): Protocol for a mixed methods pilot evaluation of the impact of a co-designed collective leadership intervention on team performance and safety culture in a hospital group in Ireland
AUTHORS	McAuliffe, Eilish; De Brún, Aoife;Ward, Marie; O'Shea, Marie; Cunningham, Una; O'Donovan, Róisín; McGinley, Sinead; Fitzsimons, John; Corrigan, Siobhán; McDonald, Nick;

VERSION 1 – REVIEW

REVIEWER	Andrew Georgiou Centre for Health Systems and Safety Research, Australian Institute of Health Innovation, Macquarie University, Sydney, Australia.
REVIEW RETURNED	05-Jun-2017

GENERAL COMMENTS	The paper outlines an interesting and valuable approach for identifying key components of collective leadership. I have some comments and suggestions to offer: 1. Phase 1 proposes the use of Social Network Analysis (SNA) with the inclusion of in-depth interviews and online surveys. I believe the paper could be strengthened by providing more of a justification for the choice of SNA, particularly in relation to why it is the most appropriate choice. 2. I would have liked some more descriptive detail about the 11 hospitals involved in the network. This would help the reader to appreciate the context of the study, e.g., background on information about the overall structures, settings and frameworks in which the participants are involved. 3. Can the authors provide an outline of the measures they plan to use to ensure the methodological rigour and validity of their analysis? 4. Phase 2 aims to develop a collective leadership intervention, which will be informed by case studies and literature reviews. I would have felt more confident about this method if the authors were able to provide more detail of the theoretical orientation or framework they plan to utilise. There is the suggestion that a Context-Mechanisms-Outcomes approach will be used. If that is the case, can the authors provide definitions along with some extra clarity about the concepts. and what relationships are involved? 5. Phase 3 plans to use evaluation measures to assess Key Performance Indicators, Quality Performance Indicators and Safety Performance Indicators. It is not clear what data will be used to

	undertake these measurements, additional to the Aston Team Performance Inventory? Will this involve routinely collected hospital data? Perhaps the study will undertake an audit? The paper needs to address the feasibility of this proposed undertaking.

REVIEWER	Charlotte Klinga Karolinska Institutet, Department of Learning, Informatics, Management and Ethics, Medical Management Centre Sweden
REVIEW RETURNED	15-Jun-2017

GENERAL COMMENTS	The study protocol is very well written. It has a clear and logical structure which makes it very readable. The description of what is known and what the forthcoming study will add demonstrates excellent ability to evaluate and draw conclusions about the state of knowledge in the research field. The purpose is precise and clearly formulated, well-defined and realistic and explains the overall objective of the study in spite the comprehensiveness of the study. The choice of research design is extensively described and logical and relevant in relation to purpose, as well as the variables and methods. However, description of how the interview guide and online survey were created is missing likewise the dates of the study.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

1. Phase 1 proposes the use of Social Network Analysis (SNA) with the inclusion of in-depth interviews and online surveys. I believe the paper could be strengthened by providing more of a justification for the choice of SNA, particularly in relation to why it is the most appropriate choice. Thank you for your suggestion. We have now included a rationale for the use and specific value of SNA to address this research question (page 9).

2. I would have liked some more descriptive detail about the 11 hospitals involved in the network. This would help the reader to appreciate the context of the study, e.g., background on information about the overall structures, settings and frameworks in which the participants are involved.

We have now included a paragraph in the Methods section (Context of the research, pg. 8) in order to provide some background information about the hospital group, an overview of the 11 hospitals in the group, and information regarding the size of the group in terms of staffing numbers and the size of the population served by the hospitals.

3. Can the authors provide an outline of the measures they plan to use to ensure the methodological rigour and validity of their analysis?
One of the key features of the co-design approach is its emergent nature. Given that we are co-designing the intervention content as part of the methodology, we cannot pre-specify what that

intervention may look like, or what the most appropriate means of its evaluation will be from the outset, as it will be important that the evaluation measures align with both the study aims and the finalised intervention content. Researchers in the field specifically warn against pre-specification of intervention content and assessment measures, describing the practice as "at best ironic and at worst a recipe for failure, since by definition, the definitive intervention and its application is not pre-determined. Rather, the research question, the nature and delivery of the intervention and how its impact is measured, must be co-determined by researchers and other stakeholders" (Goodyear-Smith et al., 2015).

The research team will be responsible for selecting robust psychometric instruments for the co-design team to consider; however, it is only through the co-design process that these measures will be finalised for use in the evaluation of the intervention. For clarity, this is now explicitly stated in the Methods section under Phase 3 (page 15) and we have included an explanation of the relevant considerations for the final selection of appropriate measures (page 16). We hope this explanation addresses your query.

4. Phase 2 aims to develop a collective leadership intervention, which will be informed by case studies and literature reviews. I would have felt more confident about this method if the authors were able to provide more detail of the theoretical orientation or framework they plan to utilise. There is the suggestion that a Context-Mechanisms-Outcomes approach will be used. If that is the case, can the authors provide definitions along with some extra clarity about the concepts. and what relationships are involved?

As outlined above, co-design necessitates that the approach is grounded in, and driven by, the real-world needs of those involved in a service or process. It is based on the premise that those with direct experience of the service or process are best placed to design, refine and improve it. Therefore, rather than the research team going in with a defined way of working or specific agenda, instead the agenda and priorities emerge through discussions with the stakeholders, with the priorities set by those involved in co-design (e.g. Wherton, et al., 2015). The researchers will prepare inputs in the form of case studies, summaries of the relevant literature etc. to inform co-design workshop discussions.

The central conceptual framework underpinning the research programme is that collective leadership will improve healthcare team performance and staff engagement, which will lead to an enhanced safety culture and improvements in quality and safety. This is now stated in the Introduction section (pg. 7). This hypothesis is based on previous studies' findings that shared leadership predicts team effectiveness (D'Innocenzo et al., 2014; Wang et al., 2014) and on the previously verified association between effective leadership and improved quality and safety (Kaufman & McCaughan, 2013).

5. Phase 3 plans to use evaluation measures to assess Key Performance Indicators, Quality Performance Indicators and Safety Performance Indicators. It is not clear what data will be used to undertake these measurements, additional to the Aston Team Performance Inventory? Will this involve routinely collected hospital data? Perhaps the study will undertake an audit? The paper needs to address the feasibility of this proposed undertaking.

In this study, we will be working with four different team types, with different demands and processes, measured against different performance indicators. For this reason, we believe it is most appropriate for teams to select the measures that are most meaningful for them. This may include information already collected by teams, such as KPIs or SPIs, but teams may also have other priorities. This approach was previously adopted by Miller et al. (2007) in allowing very different teams to select the most appropriate measures and identify their own criteria for success and is consistent with the co-design approach (Goodyear-Smith et al., 2015).

Reviewer: 2
The study protocol is very well written. It has a clear and logical structure which makes it very

readable. The description of what is known and what the forthcoming study will add demonstrates excellent ability to evaluate and draw conclusions about the state of knowledge in the research field. The purpose is precise and clearly formulated, well-defined and realistic and explains the overall objective of the study in spite the comprehensiveness of the study. The choice of research design is extensively described and logical and relevant in relation to purpose, as well as the variables and methods. However, description of how the interview guide and online survey were created is missing likewise the dates of the study.

Thank you for your comments. We have now included a brief description of how the interview guide and online survey were developed and have included the start and end dates for the research in the Methods section.

We hope the revised manuscript satisfactorily addresses the reviewer comments and look forward to hearing from you in due course.

Yours sincerely,

The authors.

References

D'Innocenzo L, Mathieu JE, Kukenberger MR. A meta-analysis of different forms of shared leadership–team performance relations. Journal of Management. 2014:0149206314525205.

Goodyear-Smith F, Jackson C, Greenhalgh T. Co-design and implementation research: challenges and solutions for ethics committees. BMC medical ethics. 2015;16(1):78.

Kaufman G, McCaughan D. The effect of organisational culture on patient safety. Nursing Standard. 2013;27(43):50.

Miller K, Walmsley J, Williams S. Shared leadership: an idea whose time has come in healthcare?. International Journal of Leadership in Public Services. 2007;3(4):24-37.

Wherton J, Sugarhood P, Procter R, Hinder S, Greenhalgh T. Co-production in practice: how people with assisted living needs can help design and evolve technologies and services. Implementation Science. 2015 May 26;10(1):75.

Wang D, Waldman DA, Zhang Z. A meta-analysis of shared leadership and team effectiveness. Journal of Applied Psychology. 2014;99(2):181.